

Application No. 10/798,575  
Amendment dated  
Reply to Office Action of December 20, 2005

Docket No.: 20696-00090-US

### REMARKS

Claims 1 and 4-14 are pending. Claims 2-3 are canceled. Claims 1, 4 and 5 are amended. Claims 6-14 are new.

#### Claim Amendments

Claim 1 has been amended to include the elements of canceled claims 2 and 3. Claim 4 has been amended to depend from claim 1. Claim 5 has been amended to include language consistent with the amendments to claim 1. No new matter has been added.

New claims 6 and 8 are supported by the original specification at lines 10-13 of page 5, for example. New claim 9 is supported by the original specification at lines 15-17 of page 5, for example. New claims 10-14 are similar to amended claim 5, except that claims 10-14 have different dependencies. No new matter has been added.

#### Claim Rejections

Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 1 and 5 under 35 U.S.C. §102(b) as being anticipated by Richardson et al. (U.S. Patent No. 5,701,869).

Claim 1 recites a needle valve having a conical tip which tapers down toward an end of the tip. Thus, the flow-rate regulating valve is configured such that the fuel flow area can be continuously changed by moving the tapered tip portion of the needle valve 84, and there is no sliding between the needle valve 84 and the valve seat 91. Since there is no sliding between the needle valve 84 and the valve seat 91, such as is the case with a spool valve, contamination resistance is improved.

In contrast to the valve mechanism recited in claim 1, the valve mechanism of Richardson et al. does not teach or suggest a needle valve having a conical tip which tapers down

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towards an end of the tip. Therefore, Richardson et al. do not anticipate claim 1. Claim 5 depends from claim 1, and is therefore not anticipated by Richardson et al. New claims 6-14 depend from claim 1, and for at least this reason are also not anticipated by Richardson et al.

Applicant respectfully requests reconsideration and withdrawal of the rejection of claims 2-4 under 35 U.S.C. §103(a) as being unpatentable over Richardson et al.

In order for to establish a *prima facie* case of obviousness under 35 U.S.C. §103(a), all claim limitations must be taught or suggested by the prior art. See MPEP §2143.03 and In re Royka, 490 F.2d, 981, 180 USPQ 580 (CCPA 1974). Claims 2-3 have been canceled. As stated above, claim 1 now incorporates the elements of canceled claims 2 and 3, and recites a needle valve having a conical tip which tapers down toward an end of the tip. There is no teaching or suggestion by Richardson et al. of a needle valve having a conical tip which tapers down toward an end of the tip.

In the rejection of claim 2, the Examiner stated that, while Richardson et al. do not teach a needle valve, the use of a needle valve is an obvious matter of design choice since no particular advantage from using a needle valve was disclosed by applicant. Applicant submits that incorporating the recited needle valve including a conical tip is not an obvious matter of design choice. As stated above, the advantage of using the recited valve is that there is no sliding between the needle valve and the valve seat, and contamination resistance is thereby improved. Richardson et al. do not contemplate using a conical needle valve to improve contamination resistance. Therefore, claim 1 is not obvious in view of Richardson et al.

Since claim 4 depends from claim 1, claim 4 is also not obvious in view of Richardson et al. Furthermore, claim 4 recites that a valve seat formed on an edge portion of the opening and the needle valve cooperate to control the flow rate of the fuel in the opening. Richardson et al. do not teach or suggest a valve seat formed on an edge portion of an opening and do not teach or suggest a needle valve cooperating with the valve seat.

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Claims 5-14 depend from claim 1 and are therefore not obvious in view of the  
Richardson et al. disclosure.

**Conclusion**

In view of the above amendment, applicant believes the pending application is in  
condition for allowance.

If a fee is due, please charge our Deposit Account No. 22-0185, under Order No. 20696-  
00090-US from which the undersigned is authorized to draw.

Dated:

*April 20, 2006*

Respectfully submitted,

By 

Brian J. Harrston

Registration No.: 46,750

CONNOLLY BOVE LODGE &amp; HUTZ LLP

1990 M Street, N.W., Suite 800

Washington, DC 20036

(202) 331-7111

(Fax)

Attorney for Applicant